CinéWave 4.7 Configuration and Qualification Guide for Mac OS 10.3.6 (Panther)

Listed throughout this document are the requirements to configure CinéWave 4.7 RT, CinéWave 4.7 RT Pro and CinéWave 4.7 HD editing systems, using a qualified Apple Power Mac G5 or G4 running Mac OS 10.3.6, Final Cut Pro HD (version 4.5), QuickTime 6.5.2, a SCSI or Fibre controller (see page 9 for qualified drivers), hard disk drives, and RAID enclosure. This document is pertinent only to CinéWave 4.7 users.

Please refer to the CinéWave 4.7 ReadMe file and your manual (*included on the CinéWave 4 installation CD*) for information regarding CinéWave 4.7 that is not included in this document.

CinéWave 3.0.2 users should refer to the CinéWave 3.0.2 Configuration Guide, located at the following link:

http://www.pinnaclesys.com/SupportFiles/CineWave_Configuration_Mac_OS-X.pdf

Final Cut Pro 2.x and Final Cut Pro 3.x for Mac OS 9 were last supported with the CinéWave 2.1 driver. See the following link for the CinéWave Configuration & Qualification Guide for Mac OS 9:

http://www.pinnaclesys.com/SupportFiles/CineWave_Configuration.pdf

This document includes a listing of all CinéWave qualified components for Mac OS X. Included in this document are matrices outlining the configurations and components that have been fully tested and qualified by Pinnacle Systems. By no means does the absence of a specific configuration and/or component mean that they have failed the qualification process. Generally, it means that the system and/or components have not been thoroughly tested by Pinnacle Systems, because of the unavailability of one or more of the components in question. The matrices presented are not meant as a limit, but as a guide to known qualified Power Mac G5 & G4 configurations. Here at Pinnacle, we are trying to limit the guesswork and make the set up and maintenance process for your CinéWave system as easy as possible by providing a guideline to known working configurations. Please feel free to contact Pinnacle Technical Support with any ideas and/or comments on improving the CinéWave Configuration Guide.

If you experience problems with your configuration, you are encouraged to refer to the test matrix in order to see if your particular configuration was officially tested. If your particular configuration was not tested, referring to the list may provide you with a lead to where the potential problem resides.

CinéWave System Configuration and Installation Checklist

Please refer to the CinéWave System Configuration and Installation Checklist when setting up your CinéWave workstation.

The CinéWave System Configuration and Installation Checklist are posted here:
http://www.pinnaclesys.com/SupportFiles/CineWave4_7Checklist.pdf

This checklist is meant for use with the CinéWave 4.7 Installation Instructions, which can be found at:
http://www.pinnaclesys.com/SupportFiles/CW4_7InstallInstructions.pdf

It is advised that both the Installation Checklist and the Installation Instructions be printed out at the time you are ready to configure a CinéWave system. The order of the Checklist coincides with the order of topics listed in the CinéWave Configuration Guide as well as the CinéWave 4.7 Installation Instructions. As you read through the Configuration Guide, you can simply check off the steps you have already covered when configuring your system.

Configuring an Apple Power Mac G5 or G4 System

Choose a Qualified System

Computer Description	Processor Speed (MHz)	Display Card (AGP)	System Hard Drive	SCSI/FIBRE controller	Mac OS Version	Serial Port
Power Mac G5[Ω]	Single 1.6*, 1.8 Dual 1.8, 2 & 2.5 GHz	ATI Radeon 9600XT, 9600 Pro & 9800XT[β]. NVIDIA GeForce FX5200.	Serial ATA	Apple Fibre Channel PCI Card & ATTO UL3D/33, 66 and UL4D	10.3.6	Keyspan USB Twin Serial Adapter
Xserve G4[λ]	Dual[ϕ] 1 GHz & Dual[ϕ] 1.33 GHz	ATI Radeon 9000.	Ultra ATA/100	ATTO UL3D/33	10.2.6 Server	Keyspan USB Twin Serial Adapter
Power Mac G4 (Mirrored Drive Doors) [♠]	Dual[ϕ] 867, Dual[ϕ] 1 GHz, Dual[ϕ] 1.25 GHz & Dual[ϕ] 1.42 GHz	ATI Radeon 9000 and ATI 9800 Pro.	Ultra ATA/100	ATTO UL3D/33	10.3.6	Keyspan USB Twin Serial Adapter[♦]
Power Mac G4 (QuickSilver 2002)	Single 800, 933 & Dual[ϕ] 1 GHz	ATI Radeon 7500.	Ultra ATA/66	ATTO UL3D/33	10.3.6	GeeThree Stealth
Power Mac G4 (QuickSilver)	Single 733, 867 & Dual[ϕ] 800	NVIDIA GeForce2 MX[†] & NVIDIA GeForce3.	Ultra ATA/66	ATTO UL3D/33, ATTO FC3300	10.3.6	GeeThree Stealth
Power Mac G4 (Digital Audio)	Single 466, 533, 667, 733 & Dual[ϕ] 533	NVIDIA GeForce2 MX.[†]	Ultra ATA/66	ATTO UL3D/33	10.3.6	GeeThree Stealth
Power Mac G4 (Gigabit Ethernet)	Single 400 & Dual[ϕ] 450 or 500	ATI Rage 128.	Ultra ATA/66	ATTO UL3D/33	10.3.6	GeeThree Stealth
Power Mac G4 (AGP Graphics)	400, 450, 500	ATI Rage 128.	Ultra ATA/66	ATTO UL3D/33	10.3.6	GeeThree Stealth

Ω Configuration of Power Mac G5 Workstations
Special attention should be paid to PCI slot order as specified on page 4.

*** Power Mac G5s and PCI-X**
The 1.6 GHz and the second model of Dual 1.8 Power Mac G5s do not contain any PCI-X slots.

β ATI Radeon 9800XT 256 MB Graphics card
When working in Final Cut Pro HD with CinéWave 4.7, some tearing of desktop video has been noted when switching zoom magnification in the Viewer and Canvas. When corrupt images are displayed on the desktop, proper display can be restored by switching zoom magnification back and forth again.

λ Notes on Xserve Certification
The XServe G5 is not supported for use with CinéWave, as there are only two PCI slots and one is occupied by the display card. The Xserve G4 was last tested with Mac OS 10.2.6 Server. It has not yet been tested with Mac OS 10.3 Server (or later), and has therefore not yet been certified for use with CinéWave 4.7.

ϕ Black Frames on Playback with Dual Processor Workstations
CinéWave 4.0 and above corrects a dual processor, QuickTime 6 error that could lead to black flashes when playing back a sequence, which utilizes RT effects. Since the Power Mac G5 hardware was not supported until version 4.0.1 of CineWave, this is not an issue on those units.
CinéWave 3.x users with Dual processor workstations should upgrade to CinéWave 4 in order to resolve this issue.

♠ Notes Regarding the Power Mac G4 MDD Systems:
The Power Mac G4 MDD systems are qualified under the condition that they be used with the CinéWave fan assembly (Pinnacle Systems part# 51014161) provided by Pinnacle Systems. The CinéWave fan assembly is not required or recommended for use with the Power Mac G5 systems. For details regarding this fan kit see the "Required Components for Power Mac G4 MDD Systems" section of this Configuration Guide.

♦ Note: Regarding Erroneous Timecode Breaks:
Erroneous timecode breaks have been reported on the new Mirrored Drive Door G4s when working with GeeThree Stealth, Griffin and Keyspan PCI serial adapters on Mac OS X. To avoid these errors, the user may disable the "Abort of Broken Timecode" preference in Final Cut Pro (although legitimate timecode breaks will, then, also not be reported). It has been found that the Keyspan USB device control can more successfully navigate this problem in the operating system, although erroneous timecode breaks have also been encountered there, on clips greater in length than 30 minutes.

† Note Regarding the NVIDIA GeForce2 TwinView Graphic Card:
The NVIDIA GeForce2 TwinView graphic card may result in dropped frames with extended playback, within Final Cut Pro, when both ports of the display card are is use. When either one of the ports is used individually, playback is fine.

Special Limitations with Power Mac G5 Systems

- When installing the TARGA Ciné Engine into a PCI-X equipped Power Mac G5 (Single and Dual 1.8 GHz and Dual 2 and 2.5 GHz), any combination of PCI slots can be used. However, each slot configuration has specific settings requirements and comes with its own unique performance expectations. When installing a 66 MHz CinéWave card into any of the above mentioned G5s, we strongly recommend placing the Fibre Channel or SCSI card in Slot 2 and the CinéWave card in Slot 4 to provide the best performance and heat dissipation. If, however, the storage controller is a 133MHz PCI-X card, it should be installed in slot 4 and the TARGA Ciné Engine in slot 3. For optimal performance when working with high definition footage, CinéWave cards still operating at 33 MHz should be placed in slot 3 with the Fibre Channel or SCSI card in slot 2. Please consult the **CinéWave 4.7 Installation Instructions** before configuring your hardware and software.

- For reliable playback of real-time 16 bit and, especially, high definition material on Mac OS 10.3 and above, users must upgrade to the most recent version of the drivers for the ATTO UL3D (version 3.2). The ATTO ExpressPCIPlus version 2.1 is recommended for use with Mac OS 10.2.8. Please refer to www.attotech.com for more information on updated drives.

- Rendering to the internal ATA drive on the Power Mac G5 will cause the system to hang up when using Mac OS 10.2.7. A hard reboot will be necessary. We strongly recommend rendering only to a supported external Fibre or SCSI arrays or updating to Mac OS 10.2.8 or 10.3.6.

Special Limitations with Power Mac G4 Systems

- The ATTO UL4D PCI card does not perform well when operating at 33 Mhz, therefore should not be installed with CinéWave in a G4. Having the TARGA Ciné Engine installed with a UL4D SCSI card in the same bus in a Power Mac G5, will adversely impact Ultra 320 performance unless the TARGA Ciné Engine is upgraded to 66 MHz. The UL4D can be used in a Power MacG5, even with a 33 MHz card, provided the CinéWave card and UL4D are installed in separate busses. Please see details on slot configuration on page 4 and on the process for upgrading your TARGA Ciné Engine to 66 MHz on page 5.

Special Limitations with Power Mac G4 and G5 Systems

- For reliable capture and playback of clips using software compression to non-native formats (DV25/DV50, Photo-JPEG, RGBA, Animation and 10-bit sources) a Macintosh computer with dual 1 GHz PowerPC G4 processors is required.
- For reliable performance when working with CinéWave-encoded DVCPRO HD (DV100) clips, the recommended configuration is a PCI-X-equipped G5, with CinéWave and the storage HBA in a split bus configuration.
- Real-time effects in high definition require a dual processor Power Mac G5.

General Limitations with Power Mac Systems

- The system boot drive must be an Ultra ATA drive. (SCSI boot drives are not qualified for use with CinéWave)
- A minimum of 512MB of RAM is required for Standard Definition RT or High Definition editing (in a split bus configuration – see notes on p. 4 – a minimum of 1GB may be required for reliable performance). For real-time DVC Pro HD editing, the minimum is 1GB.
- The display monitor must be set to millions of colors.
- For use with Final Cut Pro and CinéWave, the primary desktop (VGA or Digital) display should be connected to the Apple supplied AGP card (including the XServe, where an AGP "Riser" card should be added).
- Pinnacle Systems does not recommend using PCI graphics cards for secondary displays under Mac OS X♥ if two display monitors are to be used, it is recommended to use a dual head AGP display card.

♥Note Regarding Secondary PCI Graphics Cards:

Apple is aware of a problem with the memory management of Mac OS 10.2.x when multiple PCI cards containing memory (e.g. display cards & the TARGA Ciné Engine) are installed in a G4 with larger amounts of memory. The system may experience "Kernel Panics". There can also be failures in mapping the hardware, which will appear as the CinéWave System Preference reporting that no hardware has been found. The only current solution is to remove the secondary display card, or reduce the memory to a configuration between 512MB & 1GB. Pinnacle has found that the problem is most likely to occur when the AGP & PCI cards are from two different vendors. With the availability of AGP graphics cards with multiple outputs, however, the problem is completely averted. This is, therefore, the configuration most highly recommended by Pinnacle Systems. Users who have not upgraded to Mac OS 10.3.x or a G5 are still advised to run with less than 1 GB of RAM installed to avoid the increased likelihood of other issues, including the potential for corrupt renders. **This issue has been resolved with Mac OS 10.2.7 & 10.2.8 on G5 systems. Note that 10.2.8 for the G4 does not include this change. The issue is resolved under Mac OS 10.3 (Panther) on all Macintosh computers.**

Procedure for Upgrading TARGA Ciné Engine to 66 MHz

Great news for CinéWave owners, you can now boost the power of your TARGA Ciné Engine PCI card from 33 MHz to 66 MHz for a nominal fee. Please refer to the Pinnacle Systems website at the following link, to receive more details on this process:

http://www.pinnaclesys.com/docloader.asp?templ=1044&doclink=/BSD/cinewave/English(US)/doc/upg_cw_031504.html&product_id=108&Langue_ID=7

Please note that the 66 MHz upgrade will only effectively boost the performance and throughput on Apple Power Mac G5's with PCI-X compatible busses. However, the 66 MHz TARGA Ciné Engine is fully compatible with all Power Mac G4s and G5 computers.

All TARGA Ciné Engine PCI cards with a part number of 141203043, Revision D or above are already 66 MHz. In addition, TARGA Ciné Engines with a white sticker listing with the words "66 MHz" are also already upgraded to 66 MHz.

If the card is operating at 66 MHz, the user should see the suffix "–66" appended to TARGA Ciné Engine at the bottom of the CinéWave 4.7 preference pane window. If you think your card has been upgraded, but you are not seeing this suffix, it is possible that you either:

1. Have the card installed in a Power Mac G4 (no 66 MHz-compatible slots)
2. Have another 33 MHz card installed in the same bus as the TARGA Ciné Engine
3. The upgrade was not performed properly

Please refer to the CinéWave Installation Instructions for more information on properly setting up your CinéWave 4.7 systems.

Required Components for the Power Mac G4 MDD Systems:

CinéWave Fan Assembly:

Customers using the Power Mac G4 MDD systems should consult the CinéWave 4.0.3 Configuration Guide for details on acquiring the required fan assembly.

GeeThree Stealth Serial PCI Bracket:

Customers using the GeeThree Stealth Serial Adapter should consult the CinéWave 4.0.3 Configuration Guide for details on acquiring the PCI bracket, used instead of replacing the modem. ♦

> ♦**Note: Regarding Erroneous Timecode Breaks:**
> Erroneous timecode breaks have been reported on the new Mirrored Drive door G4s when working with GeeThree Stealth, Griffin and Keyspan PCI serial adapters on Mac OS X. To avoid these errors, the user may disable the "Abort of Broken Timecode" preference in Final Cut Pro (although legitimate timecode breaks will, then, also not be reported). It has been found that the Keyspan USB device control can more successfully navigate this problem in the operating system, although erroneous timecode breaks have also been encountered there, on clips greater in length than 30 minutes.

Required Software Versions:

Apple Software:

- Final Cut Pro HD (version 4.5) is required, and can be found at:
  http://www.info.apple.com/usen/finalcutpro/
- Any Apple-provided updates for Apple G4 system software and firmware can be found at:
  http://www.info.apple.com/usen/g4/
- Any Apple-provided updates for Apple G5 system software and firmware can be found at:
  http://www.info.apple.com/usen/g5/
- QuickTime (QT) version 6.5.2 is required, and is available at:
  http://www.info.apple.com/usen/quicktime/
- Any Apple-provided updates for Mac OS X can be found at:
  http://www.apple.com/support/panther/
- The English version of Mac OS 10.3.6 is required for Power Mac G5 systems
- The English version of Mac OS 10.3.6 is required for Power Mac G4 systems.
- Mac OS 10.2.8 and earlier versions of Mac OS X are not supported with CinéWave 4.5 and later. Jaguar users should continue using the CinéWave 4.0.3 driver until they are able to update their operating system.
- When utilizing Mac OS 9 and Mac OS X on the same G4 system, Pinnacle Systems strongly recommends that you run each operating system on separate drives or, at least, separate partitions on the same drive.

Pinnacle Systems Software:

- CinéWave 4.7 is compatible with Final Cut Pro HD (version 4.5). Earlier versions of Final Cut Pro are not supported with CinéWave 4.7. Final Cut Pro HD (version 4.5) supports the newly added features of the CinéWave 4.7 software, listed below:
  - True real-time, multi-stream DVCPRO HD editing and effects in all popular formats and frame rates with simultaneous monitoring of video on true YUV SD and HD monitors.
  - Capture and compress in real-time to DV100 from all popular HD formats and frame rates through HD-SDI legacy decks and devices.
  - Transcode between popular formats and frame rates in real-time (e.g. 1080/24PsF to 720/24p).
  - Complete support for all frame rates with Panasonic's VariCam progressive scan variable frame rate HD camcorder, allowing for undercrank and overcrank.

- Full support for capturing to the Apple 8 bit codec with CinéWave, to complement existing support for Apple RT Extreme and the ability to capture to the Apple 10 bit codec.

System Preference Settings

All unnecessary system drivers or services should be deactivated (e.g., screen savers, automatic login items, virus protection, file sharing services, etc.).

Launch the System Preferences utility, and make the following changes:

- In the "Login Items" System Preference Pane, remove any items that automatically start when you log in.
- In the "Screen Effects" System Preference Pane, set "Time until screen effects start" to "Never".
- In the "Display" System Preference Pane, set the "Colors" to "Millions"
- In the Energy Saver System Preference Pane, set "Put the computer to sleep when it has been inactive" to "Never"; and "Put the hard disk to sleep when possible" should not be checked.
- In the Sound System Preference Pane, select the "Sound Effects" tab. Turn the "Output volume" all the way up, and lower the "Alert volume" to the desired level. Select the "Output" tab and select "CinéWave Tether 1 and 2" as the desired output. Select the "Input" tab. Set the "Input volume" to the midpoint of the slider, this can be adjusted later as needed when digitizing analog audio inputs. It is also important to set the proper input setting (AES/EBU, SDI, Balanced or Unbalanced, etc.) prior to attempting capture or editing capture presets. The setting should match the signal that is being fed to the CinéWave Breakout Box. This is particularly important when working with digital sources. If improperly configured, you may encounter hardware errors when launching Log & Capture or editing Presets. To verify that the settings have properly initialized, after setting the Sound Preferences, quit out of System Preferences and relaunch. Open the CinéWave System Preference and verify the Sound Input listed in the TARGA Ciné Engine tab.
- In the QuickTime System Preference Pane, select the "Update" tab, and deselect "check for updates automatically". Select "About QuickTime" and verify that the version of QuickTime installed on the system is in accordance with the version mentioned in the "Required Software Versions" section of this Configuration Guide.
- In the "Sharing" System Preference Pane, disable all services. The Firewall should be off. Internet sharing should be off.
- In the Date and Time System Preference Pane, the Menu Bar Clock should be disabled. The option to ""Use a Network Time Server"" should be deselected.
- In the Software Update System Preference Pane, "Automatically check for updates when you have a network connection" should be unchecked.

Quit out of the System Preferences utility before launching any application, which utilizes the CinéWave card or breakout box.

SCSI Device and Driver Recommendations

SCSI Controllers:

- For reliable playback of real-time 16-bit and, especially, high definition material on Mac OS 10.3 and above, users must upgrade to the most recent version of the drivers for the ATTO UL3D (version 3.2). The ATTO ExpressPCIPlus version 2.1 is recommended for use with Mac OS 10.2.8. Please refer to www.attotech.com for more information on updated drives.).
- Do NOT attempt to operate CinéWave with two single channel SCSI cards instead of the approved dual-channel SCSI cards.
- Be sure that the number of drives is the same for both channels of the SCSI controller in order to achieve balanced performance (e.g. 1+1, 2+2, etc.).

SCSI Cabling:

- Ultra 160 certified cables and terminators must be used with ultra 160 drives. (One of each is required per channel.)
- Two channels are used, so two identical cables and two identical terminators are needed.
- SCSI cable lengths should match and not exceed 3 meters (shorter cables equal better performance). Fiber cables do not have this same limitation.
- Ultra 320 drives require Ultra 320 cables and terminators. (One of each is required per channel.)

RAID Array Recommendations:

Striping Software:

- ATTO Technology's ExpressStripe version 3.0 has been qualified for use with CinéWave.
- If you have trouble formatting your drives with ExpressStripe, it might be necessary to first erase the disks with Apple Computer's "Disk Utility". This should only be necessary if you have first used the Apple utility to stripe your array.
- Apple Computer's "Disk Utility" can be utilized to setup a striped set.
- A software RAID 0 configuration is needed for maximum performance with either ATTO's ExpressStripe or Apple Computer's "Disk Utility".

- When upgrading from OS 9 to OS X, users may find it useful to refer to earlier version of this Configuration Guide for helpful hints on working with ATTO striping software. The CinéWave 3.0.2 Configuration Guide can be found at: http://www.pinnaclesys.com/SupportFiles/CineWave_Configuration_Mac_OS-X.pdf

Disk Array Configuration:

- Pinnacle Systems recommends a minimum array configuration of two channels; with 4 drives per channel, for a total of 8 drives per array when working with SD and HD footage

- Pinnacle Systems recommends a minimum array configuration of two channels with 2 hard disks per channel, or a single channel with 4 drives when working with real-time SD footage.

- Default ID on each channel should be SCSI ID =1, with additional drives using ID's 2,3,4, etc.

- Avoid SCSI ID =7. This address is the default ID of the SCSI controller. It is best to use SCSI Ids 1-4. SCSI IDs 8 – 15 can be used, but there is a 1-2% drop in performance as compared to using SCSI IDs 1-4. SCSI ID =0 should also be usable; however, the computer could get confused about its boot drive if the SCSI ID is set to 0. The system should never boot from the array.

- The maximum array configuration is 15 drives per channel with two channels, for a total of 30 hard disks per array.

Qualified Drive Mechanisms:

- Any hard drive with a cache of less than 2-MB is NOT supported. An 8 MB Cache is required for high definition performance.

- All 10,000 rpm or faster drives are sensitive to vibration, including acoustical vibration from the surrounding environment (noise, loud music, passing trucks, earthquakes of any magnitude), so use common sense.

- Regarding drive maintenance, disks should be routinely checked with the “First Aid” option of Apple Computer’s “Disk Utility”. If a disk or volume can’t be repaired with the “First Aid” option, Norton Utilities may be required to fix the problem. If Norton Utilities is unable to fix the problem, the drive may require a low level format. It is not recommended that Norton be run on an array unless you intend to reformat.

Qualified Enclosures and RAID Arrays for CinéWave 4.7 on Mac OS X:

Please note that seek rates with some drive configurations may not be fast enough for reliable performance when working with 10 and 16-bit real time effects – particularly dual stream – or when more than 2 streams of 8 bit uncompressed video are being played back simultaneously.

Please refer to the tested configurations listed in the matrix on the following page.

Key:	**ES = ATTO ExpressStripe**	**AER = ATTO ExpressRAID**
	AAPL = Apple Disk Utility	**SR = SoftRAID**
	UL4D = ATTO Express PCI UL4D	**SNFC = StudioNet FC VMS 1.8**
	UL3D = ATTO Express PCI UL3D	**HD = High Definition Video**
	39160 = Adaptec Power Domain 39160	**SD = Standard Definition Video**
	FC3300 = ATTO Fibre Channel FC3300	**RT = Standard Definition Real Time Video**
	FC3321 = ATTO Fibre Channel FC3321	
	AFCPC = Apple Fibre Channel PCI Card	**TBD = To Be Determined**

(SEE NEXT PAGE FOR TEST MATRIX)

connecting creativity

Qualified Enclosures and RAID Arrays for CinéWave 4.7 on Mac OS X:

Manufacturer	Model	Raid Software	Software Raid Level	Drive MFG	Hard Drive Model	SCSI/FIBRE controller	Video Format	Mac OS 10.2.8	Mac OS 10.3.6
Apple Computer www.apple.com	Xserve RAID	AAPL	RAID 50	Apple	Apple Drive Module (14)	AFCPC	SD, RT* & HD	Approved	Approved
ADTX www.adtx.com/us	ArrayMasStor L Series	AAPL	RAID 50	N/A	N/A	Astera Rhino HA3000	SD, RT & HD	TBD	Approved
ATTO Technology www.attotech.com	Diamond Storage Array S-Class for HD	ES	RAID 0	N/A	N/A	FC3321	SD, RT* & HD	TBD	Approved with 10.3.3 only.
LaCie www.lacie.com	TX 12000	ES &AAPL	RAID 0	Seagate	ST373307LC	UL4D, UL3D & 39160	SD, RT & HD	Approved	Approved
LaCie www.lacie.com	Big Disk Extreme	AAPL	RAID 0	N/A	N/A	Built-In FW800 port with LaCie FW 800 PCI card	SD, RT*	TBD	Approved
Glyph www.glyphtech.com	JK2002 (14 Bay)	ES&AAPL	RAID 0	Maxtor	Atlas 10K-III	UL3D & 39160	SD, RT & HD	Approved	Approved
HUGE Systems www.hugesystems.com	Media Vault 1800 Dual Max	ES&AAPL	RAID 0	N/A	N/A	UL3D & 39160	SD, RT* & HD	Approved	Approved
HUGE Systems www.hugesystems.com	Media Vault U-320S	AAPL	RAID 0	N/A	N/A	UL4D	SD, RT & HD	TBD	Approved
JMR www.jmr.com	FORTRA 4-bay or 8-bay*	SR	RAID 0	Maxtor	Atlas 10K-II & 10K-III	UL3D & 39160	SD, RT & HD	TBD	TBD
Medéa www.medea.com	VideoRaid RT3X	AAPL	RAID 30	N/A	N/A	UL4D	SD, RT* & HD*	TBD	Approved
Medéa www.medea.com	VideoRaid RTR	ES&AAPL	RAID 30	N/A	N/A	UL3D	SD & RT*	Approved	Approved
Medéa www.medea.com	VideoRaid RTRX	ES&AAPL	RAID 30	N/A	N/A	UL3D	SD, RT* & HD	Approved	Approved
Medéa www.medea.com	VideoRaid RTS	ES&AAPL	RAID 30	N/A	N/A	TBD	SD, RT *	Approved	Approved
ProMAX www.promax.com	ProMAX SATAMAXi/1000-Mac	AAPL	RAID 0	N/A	N/A	Two Port SATA PCI Host Adapter	SD, RT* & HD	TBD	Approved
RAID, Inc. www.raidinc.com	Falcon 12 Bay	AAPL	RAID 0	N/A	N/A	UL3D	SD, RT & HD*	TBD	Approved
Rorke Data www.rorke.com	MaxArray 8-bay tower	ES&AAPL	RAID 0	Maxtor	Atlas 10K-II & 10K-III	UL3D & 39160	SD, RT & HD	Approved	Approved
Rorke Data www.rorke.com	MaxArray 8-bay tower	ES&AAPL	RAID 0	Seagate	ST373405LC	UL3D & 39160	SD, RT & HD	Approved	Approved
Rorke Data www.rorke.com	Galaxy 60 – 2 Gb Fibre Channel	ES	RAID 0	Seagate	FC 373405FC	FC3300*	SD, RT & HD	Approved	TBD
Rorke Data www.rorke.com	Galaxy GXL-5ST series	ES	RAID 30	N/A	N/A	UL3D	SD & RT*	Approved	TBD
Rorke Data www.rorke.com	Galaxy GXL-10SR series	ES	RAID 30	N/A	N/A	UL3D	SD, RT* & HD	Approved	TBD
Rorke Data www.rorke.com	MaxArray U320	ES	RAID 0	Seagate	ST373307LC	UL3D*	SD, RT & HD	Approved	TBD

StorCase www.storcase.com	Infostation	ES&AAPL	RAID 0	Maxtor	Atlas 10K-II	UL3D	SD, RT & HD	Approved	Approved

Important Notes Regarding Specific Enclosures:

- **Apple Xserve RAID**:

The Xserve RAID was tested with the 512 MB Cache Module, in a fully populated14 Apple Drive Configuration, striped across both channels with Apple's Disk Utility, creating a RAID level 50 storage system. High Definition playback is dependent upon a pre-fetch setting of 128 and real-time playback is dependent on a pre-fetch setting of 1. Seek rates may not be fast enough for reliable performance when working with 10 and 16-bit real-time – particularly dual stream – or where more than 2 streams of 8 bit video are being played simultaneously.

- **ADTX ArrayMasStor L Series:**

All testing was performed with the Astera Rhino HA Series Fibre card.

- **ATTO Diamond Storage Array S-Class for HD:**

All testing was performed on the ATTO ExpressPCI FC 3321 Fibre Channel adapter, using driver version 2.1.1 and ExpressStripe version 2.2 as a striping utility (with interleave set to 256). Seek rates may not be fast enough for reliable performance when working with 10 and 16-bit real-time – particularly dual stream – or where more than 2 streams of 8 bit video are being played simultaneously.

- **JMR FORTRA:**

When using the JMR FORTRA JBOD enclosures, it is possible to use one or two 4-bay units instead of an 8-bay unit to reduce the weight of each unit. This makes the system more portable.

- **HUGE Systems HMV-1800 DualMax:**

Seek rates may not be fast enough for reliable performance when working with 10 and 16-bit real-time – particularly dual stream – or where more than 2 streams of 8 bit video are being played simultaneously.

- **La Cie Big Disk Extreme:**

Real-time multi-stream playback is dependent on two units being striped together, with one unit on the built-in FireWire port and the other on a La Cie FW800 PCI card (or across two FW800 PCI cards). Even more real-time effects (more streams, time remapping and RGBA composites) can be achieved with 4 striped units (two per channel). Although capturing uncompressed high definition is not feasible with this technology, HD playback can be achieved (most effectively when the built-in FW800 port is used for one channel).

- **Medéa VideoRaid RT3X:**

Users may encounter Edit to Tape failures when 4 channels of audio are being read from disk while a rendered video file is also being read. Pinnacle Systems has found that manually mixing the audio (through an export) to two tracks averts the issue (the Final Cut Pro software audio mixdown function is not sufficient in this case).

- **Medéa VideoRaid RTS, RTR and RTRX:**

RT playback, RT Pro playback and HD playback and recording with the Medéa VideoRaid RTS, RTR and RTRX are dependent upon the two volumes being striped together as one single, dual-channel volume. Please run the following firmware update for the drives you have: x159 for the RTS, RTR and RTRX. Seek rates may not be fast enough for reliable performance when working with 10 and 16-bit real-time (particularly dual stream) or where more than 2 streams of 8 bit video are being played simultaneously or when quick cuts (such as a series of 1 frame edits) are used in a high definition timeline.

- **ProMAX SATAMAXi/1000-Mac:**

Seek rates may not be fast enough for reliable performance when working with dual stream real-time effects. Certification for SD performance is based on single stream effects only (including keyframeable filters) - with limited support for two graphics layers and short transitions (max. 1 second). Dual stream 8 bit and above as well as RGBA files will drop frames on playback.

- **RAID, Inc. Falcon 12 Bay:**

HD playback and recording with the RAID, Inc. Falcon 12 Bay enclosure is dependent upon the two volumes being striped together as one single, dual-channel volume.

- **Rorke Galaxy 60:**

No fabric switches or sharing applications were used for the Rorke Galaxy 60 2 Gb Fibre Channel array during tests. Shared storage should NOT be considered qualified with this document. HD playback and recording was found to be dependent upon a 2x8 drive configuration, while maximum RT performance (i.e. maximum number of seats working with RT sequences simultaneously) required a 4x4 stripe set.

- **Rorke MaxArray U320:**

Testing with the Rorke MaxArray U320 was performed on a 33 MHz bus with an Ultra160 SCSI Host Adapter (ATTO ExpressPCI UL3D); Ultra 320 rates are not expected.

- **Rorke Galaxy GXL-5ST and GXL-10SR Series:**

RT playback, RT Pro playback and HD playback and recording with the Rorke Galaxy GXL-5ST and GXL-10SR are dependent upon the two volumes being striped together as one single, dual-channel volume. Please run the following firmware update for the drives you have: x159 for the RTS, RTR and RTRX. Seek rates may not be fast enough for reliable performance when working with 10 and 16-bit real-time (particularly dual stream) or where more than 2 streams of 8 bit video are being played simultaneously or when quick cuts (such as a series of 1 frame edits) are used in a high definition timeline.

General Notes Regarding Enclosures

- When powering on a RAID, make sure that all the drive lights are on to confirm that all of the devices are powered-up and functioning in the enclosure.

- The recommended enclosures require the use of disk drives with the SCA 80-pin mechanical/electrical interface. Pinnacle recommends SCA drive connectors because of higher reliability, and better physical connections, as compared to the 68-pin connectors with separate power and ribbon cabling.

- Proper attention should be paid to the specified working limitations of the enclosures for heat and humidity. The recommended enclosures all possess internal fans to dissipate heat, but this assumes that the working environment is not excessively hot.

connecting creativity

CinéWave Card and Breakout Box Installation and Configuration

Installation of the CinéWave Card into a Power Macintosh G4:

The CinéWave card can be installed into any of the Apple Power Macintosh G4's PCI slots. If a MDD system is being used, the CinéWave card should be installed in-line with the fan assembly in order to insure the maximum cooling effect.

Installation of the CinéWave Card into a Power Macintosh G5:

When installing the TARGA Ciné Engine into a PCI-X equipped Power Mac G5 (Single and Dual 1.8 GHz and Dual 2 GHz), any combination of PCI slots can be used. However, each slot configuration has specific settings requirements and comes with its own unique performance expectations. When installing into any of the above mentioned G5s, we strongly recommend placing the Fibre Channel or SCSI card in Slot 2 and the CinéWave card in Slot 4 to provide the best performance and heat dissipation. **Please consult the** CinéWave 4.7 Installation and Configuration Guidelines before configuring your hardware and software.

Connecting the Breakout Boxes:

Five different breakout boxes are available for use with CinéWave:

- Pro Analog Breakout Box
- Pro Digital Plus Breakout Box
- Pro Digital Breakout Box
- Pro Digital And Analog Breakout Box
- Pro HD Digital Breakout Box

Two different types of Breakout Boxes (e.g., analog with digital) can be connected to the TARGA Ciné Engine for simultaneous use. However, when HD is used, only one HD Breakout Box at a time can be connected (i.e., 2 non-HD boxes can be connected, 1 HD box and another type box can be connected, but 2 HD boxes cannot be connected). Also, when an HD Breakout Box is used, a standard definition (non-HD) Breakout Box must be connected to Digital Tether Connector 1.

Installation of the CinéWave Software:

Please refer to page 2-2 of the CinéWave 4 RT Hardware and Software Installation Guide for detailed software installation instructions.

CinéWave System Preference Pane Configuration:

Please refer to page 2-4 of the CinéWave 4 RT Hardware and Software Installation Guide for detailed instructions regarding the configuration of the CinéWave System Preference Pane.

Sound System Preference Pane Configuration:

Please refer to page 2-13 of the CinéWave 4 RT Hardware and Software Installation Guide for detailed instructions regarding the configuration of the Sound System Preference Pane.

Particularly with digital audio sources, it is important to set the appropriate input setting in the Sound System Preferences prior to launching Final Cut Pro, attempting capture and/or editing presets. The selected setting should match the format of the valid signal being fed to the attached CinéWave Breakout Box. Failure to make appropriate selections may result in errors, including inability to capture.

BE SURE TO QUIT THE SYSTEM PREFERENCES UTILTY BEFORE LAUNCHING ANY QUICKTIME BASED APPLICATION WHICH WILL UTILIZE THE CINÉWAVE CARD OR BREAKOUT BOX. SIMPLY CLOSING THE SYSTEM PREFERENCES WINDOW BY CLICKING ON THE "X" WILL NOT SUFFICE. FAILURE TO CLOSE THE SYSTEM PREFERENCES UTILITY COULD LEAD TO AUDIO RELATED PROBLEMS.

Genlock Settings and Signal Routing with CinéWave:

Please refer to the CinéWave Genlock Configuration Guide for settings and configuration information regarding genlocking with CinéWave:
http://www.pinnaclesys.com/SupportFiles/CineWave_4_Genlock_Guide.pdf

Knoll Light Factory and Commotion Pro for OS X

When upgrading from OS 9 to OS X, users may find it useful to refer to earlier version of this Configuration Guide for helpful hints on upgrading these applications. The CinéWave 3.0.2 Configuration Guide can be found at:
http://www.pinnaclesys.com/SupportFiles/CineWave_Configuration_Mac_OS-X.pdf

Final Cut Pro for Mac OS X Setup and Troubleshooting:

System Settings for CinéWave: Please refer to Chapter 3 of the CinéWave 4.0 Manual for specific system settings within Final Cut Pro – especially concerning Scratch Disks, Memory Allocation and Easy Setups.

Known Issues with Final Cut Pro HD (version 4.5):

Please refer to the CinéWave 4.7 ReadMe file for details regarding the following capture limitations as well as any other known issues:

- A 0.5 frame capture offset is needed for 100% frame accuracy.
- When using the Keyspan USB Serial Adapter, 720p frame accuracy can only be attained within +/- 1 frame (as is consistent with SMPTE specifications), due to the double use of each timecode frame number. Similarly, disk space requirements for 720p captures will be overestimated by double the actual amount needed.

The Final Cut Pro Crash Log

A useful tool to use when you are experiencing crashes with Final Cut Pro is the Final Cut Pro Crash Log file. This can be accessed via the "Logs" tab in the Apple System Profiler. In some cases this can be useful to Pinnacle Systems staff when troubleshooting problems related to Final Cut Pro crashing.

Troubleshooting

In the event of problems following the installation of your CinéWave system please refer to the troubleshooting section in Appendix A of the CinéWave 4.0 Manual.

RAM Related Issues

Apple is aware of a problem with the memory management of Mac OS 10.2 (including all dot release updates). The system may experience Mac OS X "Kernel Panics" which is typically a screen that appears on startup recommending restarting the machine. There can also be failures in mapping the hardware, which will appear as the CinéWave System Preference Pane reporting that no hardware has been found. Until the fundamental memory management issue is resolved in the OS, users are still advised to run with less than 1 GB of RAM installed to avoid the increased likelihood of other issues, including the potential for corrupt renders. **This Issue has been resolved with Mac OS 10.2.7 and 10.2.8 on G5 systems. Note that 10.2.8 for the G4 does not include this change. This issue is resolved under Mac OS 10.3 (Panther).**

Uninstalling and Reinstalling Software:

The Final Cut Pro Application:

On occasion you may be required to uninstall and reinstall the Final Cut Pro application and its associated files. Please refer to the following Apple technical document regarding the uninstall process for Final Cut Pro. http://docs.info.apple.com/article.html?artnum=93150

After deleting the suggested files and rebooting, the Final Cut Pro application can be reinstalled. If you find that you must uninstall the Final Cut Pro application, you must uninstall and reinstall the CinéWave software in order for the CinéWave system to function normally.

The CinéWave Software:

On occasion you may be required to uninstall and reinstall the CinéWave software or Easy Setup files. To uninstall the CinéWave software completely, run the CinéWave installer and change the option from Easy Install to Uninstall and continue with the uninstall process. To add or remove CinéWave Easy Setup files for use with Final Cut Pro, run the CinéWave installer and change the option from Easy Install to Custom Install, choose the items to uninstall or install and continue with the uninstall/install process. A reboot is required after uninstall and reinstalling the CinéWave software.

Submitting Problem Reports:

Detailed problem reports should be submitted to the Pinnacle Systems technical support department via e-mail: targa-support@pinnaclesys.com

Problems should be reported as follows:

1. Please provide an Apple System Profile (ASP) report.

To create an ASP report under Mac OS X, please do the following:

- Go to the apple in the upper left hand corner and select "About this Mac"
- Click on “More Info".
- The Apple System Profiler will now run.
- Go to "File" select "Save As".
- Change the file format to "Rich Text".
- Save the file to your hard drive.
- Send the rich text ASP file via e-mail to technical support.

2. Follow the below guidelines for writing up bugs:

a.) Present a one-sentence summary of the problem.
b.) Provide the step by step details for recreating the issue.
c.) Define the results (and how they differ from what’s expected).
d.) Please describe a workaround if one has been found.

Note: When posting issues it is extremely important to be able to provide repeatable steps for reproducing the problem. What we do internally is we write up a one-sentence summary of the issue, followed by steps - e.g.

a.) drag Ciné YUV clip to timeline
b.) Superimpose still image (Pict, PSD, JPEG, etc.)
c.) apply sepia filter to still image
d.) Place transition at end of video clip.....etc.

Following the steps you should describe your results (contrasted with your expected results) and whether or not you were able to find a workaround. This is not to say that you should NEVER post issues that are not repeatable, although often it's useful to keep notes and see if you start to notice a trend. Generally speaking, we are looking for patterns. Any clues that you can provide us with as you go about your own problem solving will help us fix issues and get to release a lot faster. Don't be afraid to include details that seem insignificant (e.g. happens in Image+Wireframe only, happens consistently in a section of the timeline that has 2 streams of video and 2 graphics.... etc.)

3. To provide a big boost to the engineering team, configure the Console application to automatically display crash logs and add these to your problem reports.
The Console application can be found in the Application Utilities folder. Open it and go to the preferences dialog. Enable the option to automatically display crash logs. When a crash is encountered, scroll to the bottom and look for the log with the most recent date. Copy and paste this info into your bug report.

Thanks in advance for taking the extra time to follow these steps, as it really will allow us to be a lot more effective in tracking down and resolving issues.

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